RESEARCH

Evaluation Of The Videos About Intraoral Devices For Bruxism On Youtube™

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Selcuk Dent J, 2022; 9: 167-172 *(Doi: 10.15311/selcukdentj.943004)*

Başvuru Tarihi: 26 Mayıs 2021
Yayına Kabul Tarihi: 12 Temmuz 2021

ABSTRACT

Evaluation Of The Videos About Intraoral Devices For Bruxism On Youtube™

Background: Stabilization splints can prevent unwanted effects of bruxism. As online healthcare information becomes more popular, YouTube™ has become the first source for users to consult about their health problems. The aim of this study is to evaluate the quality, reliability, and content of the YouTube™ videos about intraoral devices to evaluate whether there is a reliable and useful source for bruxism patients.

Methods: In this study, the term “Night Guard” was searched on YouTube™. Sixty videos on the subject were evaluated in terms of content, quality, and reliability. The included videos were analyzed for views, duration, time since video upload, likes/dislikes, number of comments, and source. Each video was classified according to the quality of information content as “useful information”, “misleading information”, “useful user view” and “misleading user view”. The Kruskal-Wallis test, The Mann-Whitney Chi-square test correlation analyses were performed.

Results: 18 videos (30%) were uploaded by healthcare professionals, 22 videos (37%) by users, 14 videos (23%) by product suppliers, and 6 videos (10%) by TV / Magazine publishers. In examining the Global Quality Scales (GQS), healthcare professionals have higher scores than others. Reliability scores of the videos uploaded by healthcare professionals are significantly higher than the other groups. (p: 0.003) Also, 17 (%28.3) of the 60 videos are in the misleading video category.

Conclusion: YouTube™ can be a platform with the potential for misleading in the use of intraoral devices. Health-related issues should not be tried to be resolved without professional support.

KEYWORDS

Bruxism, Intraoral Devices, Night Guard, Youtube.

ÖZ

YouTube™'da Yer Alan Bruksizm İçin Ağız İçi Cihazlar Hakkındaki Videoların Değerlendirilmesi

Amaç: Stabilizasyon splintleri kas aktivitesini azaltarak bruksizmin istenmeyen etkilerini önleyebilir. Çevrimiçi sağlık hizmetleri bilgileri daha popüler hale geldikçe, YouTube™, kullanıcıların sağlıkla ilgili sorunları hakkında danışmaları için ilk kaynak haline gelmiştir. Bu çalışmanın amacı, bruksizm hastaları için güvenilir ve yararlı bir bilgi kaynağı olup olmadığını değerlendirmek için ağız içi cihazlar hakkında en çok izlenen YouTube™ videolarının kalitesini, güvenilirliğini ve içeriğini değerlendirmektir.

Gereç ve Yöntemler: Bu çalışmada, "Gece Plağı" terimi YouTube™ 'da aranmıştır. Konuyla ilgili 60 video içerik, kalite ve güvenilirlik açısından 2 bağımsız araştırmacı tarafından değerlendirilmiştir. Anlaşmazlıklar üçüncü bir araştırmacı tarafından çözülmüştür. Çalışmaya dahil edilen videolar; görüntülemeler, süre, video yüklemesinden bu yana geçen süre, beğenme / beğenmeme, yorum sayısı ve kaynak açısından analiz edildi. Her video, bilgi içeriğinin kalitesine göre “faydalı bilgiler”, “yanıltıcı bilgiler”, “faydalı kullanıcı görüşü” ve “yanıltıcı kullanıcı görüşü” olarak sınıflandırılmıştır. Kruskal-Wallis testi, Mann-Whitney Ki-kare testi korelasyon analizleri yapılmıştır.

Bulgular: Sağlık uzmanları tarafından 18 video (% 30), kullanıcılar tarafından 22 video (% 37), ürün tedarikçileri tarafından 14 video (% 23) ve TV / Dergi yayıncıları tarafından 6 video (% 10) yüklendiği görülmüştür. Videoların Global Kalite Ölçekleri (GKÖ) incelendiğinde, sağlık profesyonelleri tarafından yüklenen videoların GKS puanlarının, kullanıcıların, ürün tedarikçilerinin ve TV / Dergi yükleyicilerin puanlarından daha yüksek olduğu anlaşılmaktadır. Videolar yüklendikleri kaynak olarak gruplandırıldığında sağlık mesleği mensupları tarafından yüklenen videoların güvenilirlik puanlarının diğer gruplara göre anlamlı derecede yüksek olduğu anlaşılmaktadır. (p: 0.003) Ayrıca 60 videodan 17'si (% 28.3) yanıltıcı video kategorisindedir.

Sonuç: YouTube™, ağız içi cihazların kullanımında yanıltıcı potansiyele sahip bir platform olabilir. Sağlıkla ilgili sorunlar profesyonel destek olmadan çözülmeye çalışılmamalıdır.

ANAHTAR KELİMELER

Ağız İçi Aygıtlar, Bruksizm, Gece Plağı, Youtube.

INTRODUCTION

Bruxism is a muscle activity that causes repetitive rhythmic movements of the mandible, which is often seen with teeth grinding during sleep.[1] For treatment of of bruxism, the use of intraoral devices is shown as the only option with proven effectiveness.[2] However, it has been observed that intraoral devices do not actually relieve or reduce bruxism, but only prevent teeth from

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being damaged and reduce bruxism-related symptoms.[3] Intraoral devices reduce the symptoms of bruxism by reducing muscle activity.[4,5] Stabilization splints can prevent unwanted effects of bruxism by reducing muscle activity.

Among the devices produced for this purpose, the most preferred by dentists are stabilization splints that completely cover the dental arch and avoids unwanted occlusal changes in the teeth by provide optimal occlusal contact.[6,7,8] Although the production of these splints seems easy, they require careful work and experience. Intraoral devices produced under the control of dentists for the treatment of bruxism-related problems are available online. These unproven products cause concern because they may cause unwanted adverse effects.[9] It has become possible to frequently see the promotion of such products and user comments on the platform called YouTube™.

As online healthcare information becomes more and more popular, YouTube™ has become the first source for users to consult about their health-related problems. More than 1 billion users and over 300 hours of videos uploaded every minute and billions of views support this idea.[10] For some diseases such as diabetes, hypertension, rheumatoid arthritis, it has been observed that the evaluation of patient information videos on YouTube™ has been conducted.[11,12,13] Also, the usefulness of websites in conveying health information to ordinary patients has been proven.[14,15] However, due to financial concerns and the risk of misdirecting people and misusing internet platforms, some information should be approached with suspicion.

The aim of this study is to understand the quality, reliability, and content of the most watched YouTube™ videos about intraoral devices in order to evaluate whether there is a reliable and useful source of information for bruxism patients.

MATERIAL AND METHODS

In September 2020, the 60 most watched videos about intraoral devices used in bruxism treatment were determined. The most used terms on this subject were determined as "night guard", "occlusal splint", "bite splint" and "dental guard". The last 5 years and worldwide options have been selected from the filtering options in the Google Trends application. Among these four terms, the most frequently used term "night guard" was determined. (Fig 1)

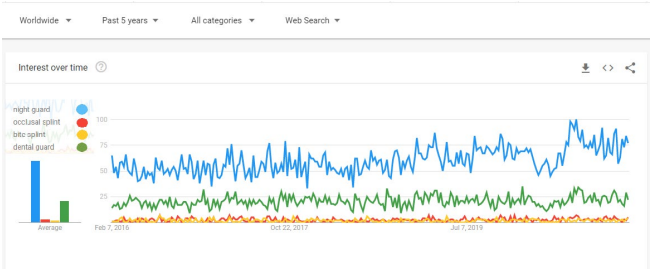

Figure 1

Graph of searches made in the last 5 years.

For this purpose, the term "night guard" was written as a keyword in the search bar of YouTube™ (www.youtube.com) and "Relevance Level" was chosen as the ranking criterion. The title and description sections of the videos displayed in the search results were examined. The first 60 videos related to the subject were evaluated. Only videos with English content and over 1000 views were included in the study.

The upload date of each video, the duration of the videos, the number of views, the number of likes and dislikes, the number of comments and the attribute of the video uploader were recorded. All videos were divided into 4 categories according to the attribute of the video uploader. These were determined as healthcare professionals, users, TV-Magazin media, and product suppliers.

Each video was evaluated by 2 independent researchers (D.I.K. and A.A.) and in case of any conflict, the opinion of the third researcher (F.N.) was consulted. Each researcher made an evaluation independent of the answers of the others. Each researcher had the title of oral-maxillofacial surgeon who had current knowledge on the use of intraoral devices in the treatment of bruxism. All videos were divided into 4 categories: useful information, misleading information, useful user view, and misleading user view. Unreal and unscientific videos containing advertisement concerns were evaluated in the category of misleading videos. In addition, all videos were scored according to the Global Quality Scale (GQS) for their contribution to patient education.16 Scoring in the GQS assessment was made according to the characteristics described in Table 1.

Table 1

Global Quality Scale

1. Poor quality, slow video streaming, insufficient information, useless for patients.
2. Generally low quality and slow flow, some information but most important information is missing, partially useless for patients.
3. Medium quality, below average flow, some important information discussed but others not mentioned, somewhat useful for patients.
4. Good quality generally good flow, most important information mentioned but some issues not clear, useful for patients.
5. High quality and flow is very useful for patients.

The target audience of all the videos was classified in accordance with the audience classification shown in Table 2.

Table 2

Target Audience

1. Patients
2. Healthcare professionals
3. Patients and healthcare professionals
4. Everyone (The goal is not to teach anything about the process)

All videos are scored for Reliability and Content. The questions in the DISCERN tool used to measure the health information used for reliability are given in Table 3.

Table 3

Reliability Scale (One point for each "yes")

1. Is the purpose clearly stated?
2. Are the sources and information used reliable?
3. Is the information unbiased?
4. Has a source been given for patient opinion?
5. Is everything clearly stated?

One point was given for each “Yes” answer.[17] Table 4, which is used similarly for content assessment, was created.

Videos containing patient views were divided into subgroups as "Positive", "Negative", "Mixed". The data obtained in this study were evaluated through R 3.5.1 (Rstudio 1.1.442). Comparisons of the mean between more than two groups were performed using the Kruskal Wallis test. The Mann-Whitney test was applied in pairs to the groups with significant differences for the averages, and accordingly, the lettering results were presented in the tables. In addition, the relationship between the two categorical groups was analyzed using the Chi-square test. The significance level was taken as 0.05 in all tests applied. The degree of agreement in the evaluations of the two researchers was calculated using the Cohen kappa coefficient.[18,19]

Table 4

Content scale (One point for each "yes")

1. Why is this tool used?
2. How is the process done?
3. What should the patient expect?
4. What are the risks, side effects, and contraindications?
5. Has it been mentioned what needs attention after the process?

A total of 60 videos were evaluated in this study. To determine the videos to be evaluated in the study, the term "night guard" was written in the search bar and 60 videos about intraoral devices were examined. Eight videos (13.3%) misleading patient views, 14 videos (23.3%) useful patient views, 9 videos (15%) misleading information, 29 videos (48.3%) were included in the useful information category. Cohen k value of the evaluation of two researchers was determined as 0.958. The features of the videos in each category are shown in Table 5.

Table 5

Attributes of Useful and Misleading Information and Patient View Videos

Variant	Missleading patient view	Usefull patint view	Missleading information	Usefull information	P
No of videos	8 (%13)	14 (%23)	9 (%16)	29 (%48)	
Mean Display	26272.000	24622.214	15357.556	36539.586	0.901[1]
±SD	±30063.837	±28393.354	±18561.465	±57046.121	
Mean Like	122.500	149.357	65.222	288.000	0.781[1]
±SD	±105.8853	±194.005	±61.445	±816.426	
Mean Dislike	20.125	12.857	4.455	20.931	0.406[1]
±SD	±21.688	±14.965	±3.678	±38.794	
Mean Comment	29.000	21.642	3.778	46.379	0.122[1]
±SD	±32.350	±27.068	±4.146	±156.45	
Mean Duration	8.737	4.394	7.025	5.912	0.574[1]
±SD	±10.368	±2.514	±7.336	±8.108	
How many days ago was installed	1722.250	974.214	967.444	1444.103	0.284[1]
	±1019.022	±533.031	±755.125	±1182.841	
Daily viewing average	13.896	25.319	18.537	87.673	0.903[1]
	±11.572	±29.682	±20.819	±368.551	
GQS	1.250 ^{A}	2.357 ^{B}	1.889 ^{A}	2.621 ^{B}	**0.009[1]***
	±0.462	±1.008	±0.927	±1.207	
Reliability Scale	0.875^{A}	1.928^{B}	0.778^{A}	1.965^{B}	**0.001[1]***
	±0.353	±1.141	±0.440	±1.017	
Content Scale	1.375	1.857	1.888	2.103	0.410[1]
	±0.916	±0.864	±0.781	±1.144	
Target audience n(%)					
Patients	8(%100.0)	14(%100.0)	9(100.0)	18(%62.1)	**0.109[2]**
Health prof.	0(%0.0)	0(%0.0)	0(%0.0)	6(%20.8)	
P+HP	0(%0.0)	0(%0.0)	0(%0.0)	4(%13.8)	
Everyone	0(%0.0)	0(%0.0)	0(%0.0)	1(%3.4)	
Patient opinion n(%)					**0.901[2]**
Positive	4(%57.1)	8(%57.1)	0(%0.0)	1(%100.0)	
Negative	1(%14.3)	1(%7.1)	0(%0.0)	0(%0.0)	
Mixed	2(%28.6)	5(%35.7)	0(%0.0)	0(%0.0)	
Uploader (%)					
Health prof.	0(%0.0)	0(%0.0)	0(%0.0)	18(%62.1)	**<0.001[2]***
Users	8(%100.0)	14(%100.0)	0(%0.0)	0(%0.0)	
Product suppliers	0(%0.0)	0(%0.0)	7(%77.8)	7(%24.1)	
TV-Magazin media	0(%0.0)	0(%0.0)	2(%22.2)	4(%13.8)	

*GQS: Global Quality Scale, Health Prof.: Health Professionals, P+HP: Patient and Health Professionals, SD: Standart Deviation, P < 0.05, * : significant result, 1: Kruskal Wallis test, 2: Chi-square test, A-B: Mann Whitney Test.*

All videos are classified according to the uploaded source. Eighteen videos (30%) were uploaded by healthcare professionals, 22 videos (37%) by users, 14 videos (23%) by product suppliers, and 6 videos (10%) by TV / Magazine publishers. The features of these videos are shown in Table 6.

Table 6

Attributes of Videos Based on Source

Variant	Healthcare professionals	Users	Product suppliers	Tv/magazin media	P
No of videos	18 (%30)	22 (%37)	14 (%23)	6 (%10)	
Mean Display	37331.277	25222.136	14163.643	54602.000	0.757[1]
±SD	±25222.136	±28302.002	±16238.189	±76904.617	
Mean Like	186.611	136.591	45.214	819.833	0.077[1]
±SS	±241.008	±164.959	±55.976	±1756.037	
Mean Dislike	15.889	15.500	4.357	50.166	0.241[1]
±SD	±30.526	±17.557	±4.325	±61878	
Mean Comment	21.611[A]	24.318[A]	2.000[A]	160.333[B]	**0.001[1*]**
±SD	±34.557	±28.558	±3.113	±336.134	
Mean Duration	6.857	5.973	2.954	11.647	0.070[1]
±SD	±8.713	±6.657	±2.840	±10.502	
Daily viewing average	24.060	21.165	14.090	346.501	0.353[1]
	±23.085	±24.933	±18.306	±810.644	
GQS	2.883[A]	1.954[B]	2.000[B]	2.333[B]	**0.047[1*]**
	±1.098	±0.999	±1.240	±1.032	
Reliability Scale	2.278[A]	1.545[B]	1.143[B]	1.166[B]	**0.003[1*]**
	±0.894	±1.056	±0.949	±0.752	
Content Scale	2.238	1.681	1.785	1.666	0.184[1]
	±1.092	±0.893	±0.974	±1.032	
Target audience n(%)					
Patients	9 (%50.0)	22 (%100.0)	13 (92.9)	5 (%83.3)	**<0.001[2]**
Health prof.	6 (%33.3)	0 (%0.0)	0 (%0.0)	0 (%0.0)	
P+HP	3 (%16.7)	0 (%0.0)	1 (%7.1)	0 (%0.0)	
Everyone	0 (%0.0)	0 (%0.0)	0 (%0.0)	1 (%16.7)	

*GQS: Global Quality Scale, Health Prof.: Health Professionals, P+HP: Patient and Health Professionals, SD: Standart Deviation, P < 0.05, * : significant result, 1: Kruskal Wallis test, 2: Chi-square test, A-B: Mann Whitney Test.*

The 22 videos are divided into subgroups in patient opinion categories. Thirteen videos (60%) stated positive, 2 videos (9%) negative, 7 videos (31%) mixed views (Table 7). Cohen k value of the evaluation of patient views by 2 researchers was determined as 0.918.

Table 7

Attributes of Patient View Videos

Variant	Positive	Negative	Mixed	P
No of Users View (%)	13 (%60)	2 (%9)	7 (%31)	
Mean Display	24615.846	1318.500	31329.483	0.077[1]
±SD	±31833.720	±422.143	±24765.145	
Mean Like	120.077	11.000	185.000	0.083[1]
±SS	±188.852	±7.071	±131.972	
Mean Dislike	11.000	2.000	24.714	0.225[1]
±SD	±12.131	±1.414	±24.817	
Mean Comment	24.769	7.000	28.571	0.574[1]
±SD	±31.472	±2.828	±27.251	
Mean Duration	41.256	9.533	8.233	0.661[1]
±SD	±2.441	±8.862	±10.624	
Daily viewing average	19.246	3.920	28.811	0.070[1]
	±29.724	±3.493	±26.207	
GQS	1.923	2.000	2.000	0.997[1]
	±0.954	±1.414	±1.154	
Reliability Scale	1.615	2.500	1.142	0.0486[1]
	±1.043	±2.121	±0.690	
Content Scale	1.846	1.500	1.428	0.646[1]
	±0.898	±0.707	±0.975	

*GQS: Global Quality Scale, SD: Standart Deviation, P < 0.05, * : significant result, 1: Kruskal Wallis test.*

Reliability scores of all videos were determined. Cohen k value of the reliability assessment of 2 researchers was determined as 0.849. When the reliability assessment was made in terms of guiding the patients, it was observed that the reliability scores of the "misleading patient opinion" and "misleading information" groups were statistically significantly lower. When the videos are grouped as the source from which they are uploaded, it is understood that the reliability scores of the videos uploaded by healthcare professionals are significantly higher than the other groups.

Content scores of all videos are determined. In the evaluation of the videos by 2 researchers in terms of content, Cohen's k value was determined as 0.790. When the content scores of the videos are evaluated, it is seen that there is no statistically significant difference between all groups in terms of content richness.

All videos are grouped according to their target audience. The harmony of the 2 researchers in determining the target audiences Cohen's k value was determined as 0.659. Among the uploaded ones, it is seen that 49 videos (81%) are for patients, 6 videos (10%) are for health professionals, 4 videos (6%) are for both patients and health professionals, and 1 video (2%) is for everyone.

The GQS values of all videos are determined for each video. The harmony of the 2 researchers in determining the GQS values, Cohen's k value was determined as 0.797. When the GQS scores are examined, it is seen that the GQS scores of the "useful information" and "useful patient views" videos are higher. It is also understood that the GQS scores of videos uploaded by healthcare professionals are higher than the scores of users, product suppliers, and TV / Magazine uploaders.

DISCUSSION

Until today, studies evaluating the effectiveness of YouTube™ on chronic diseases such as diabetes, Sjörgen's syndrome, and Crohn's disease have been carried out in the literature.[20,21,22] Video content on YouTube™ has been evaluated on subjects such as oral cancers, dental implants, gingival recessions related to oral health and dentistry.[23,24,25] This paper is the first study on intraoral devices on YouTube™.

In the study, it is understood that 60 videos examined on YouTube™ about "night guard" are approximately 6 hours long, all of them are viewed approximately 1.750.000 times and each video is viewed approximately 53.000 times a day on average. The videos provide a total of 11.913 likes and 1.911 comments, giving an idea of audience interaction. These data suggest that users search for information about intraoral devices by searching on YouTube™, use them to share their experiences, and are effective in making decisions about treatment.

YouTube™ is among the most used platforms to access information and other people's experiences around the world. In this platform, where video sharing is facilitated and videos are not produced according to any standards, the accuracy of the information raises doubts.[26] Easy access to information on social media can cause some dangers. Some contents that provide information about various diseases or share patient's experiences can direct people to alternative treatment options. On the other hand, some content may contain viral ads that promote a product.

In the study, it is seen that only 6 (10%) of the analyzed videos are intended for health professionals. Some videos contain technical information on the production of intraoral devices. It is seen that 44 (73%) of the videos examined in the study are product promotion videos for patients. Wassell et al.'s study showed that intraoral devices sold online can cause unwanted tooth movements as a result of long-term use.[9] Dentists should inform patients about the problems of these products, which are promoted on YouTube™.

When the video contents are evaluated, it is seen that 17 (29%) of 60 videos mislead the patients. However, the fact that there is no statistical difference in the parameters such as the number of views, the number of likes, the number of dislikes, and the number of comments gives the message that the viewers give the same reaction to the videos. This suggests that the misdirections are not noticed by the audience. In addition, it is seen that the GQS and reliability scales of the misleading videos are statistically significantly lower.

In the table created by grouping the videos according to the uploaders, it is seen that only 18 videos (30%) were uploaded by healthcare professionals to inform patients. The GQS and reliability scale scores of the videos uploaded by healthcare professionals were found to be statistically higher than the users, product suppliers, and TV / Magazine programs. In other words, it is understood that user opinions, product suppliers, and TV / Magazine programs are insufficient in terms of quality and reliability. The results are of concern mainly because of the lack of evidence-based information and the layman's contribution to YouTube™.[26]

In the table where the opinions of the patients' were evaluated, it is seen that only 2 videos (9%) stated negative opinions about the intraoral device they used. In the videos reflecting the patient's opinion, the price information and usage method of the products are shared. In addition, the research results show that the videos evaluating the patient's opinions are insufficient in terms of content.

Conclusions

It is an undeniable fact that social media platforms make life easier on many issues. However, the use of these tools should be done carefully. In our study, it is seen that the videos about intraoral devices on YouTube™ are insufficient in terms of reliability, quality, and content. Health-related issues should not be tried to be resolved without professional support. The selection and production of intraoral devices used in the treatment of bruxism require serious knowledge and careful work. Incorrect attempts can cause irreversible situations.

Acknowledgments

The authors thank Zehra Yavuz Kaya (DDS) for the technical support.

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